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WITHERS & KEYS LLC
PO BOX 71355
MARIETTA, GA 30007-1355

EXAMINER

DELGADO, MICHAEL A

ART UNIT	PAPER NUMBER
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2144

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/735,890

Applicant(s)

KLING ET AL.

Examiner

Michael S. A. Delgado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's arguments with respect to claims 1-8 and 10-48 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7-8, 10-12, 14-15, 17-22, 24-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,031,818 by Lo et al in view of US Patent No. 6,181,704 by Drott et al.

In claim 1, Lo teaches about a method for data distribution and recovery comprising the steps of (Fig 1) (Fig 5):

attaching unique sequence numbers to data packets (Col 3, lines 50-60);

broadcasting the data packets from a server "source or first switch in the case of Drott" to a plurality of clients and an archive "server or second switch in the case of Drott" (Col 3, lines 25-35) (Col 8, lines 55-67) (Drott Col 5, lines 55-65);

storing the data packets with their attached unique sequence numbers (Col 3, lines 50-60);

monitoring for a missing sequence number at a client (Col 3, lines 50-60);

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sending a query from the client that requests re-transmission of a missing data packet having the missing sequence number (Col 2, lines 5-15); and

transmitting to the client the missing data packet (Col 2, lines 5-15).

but does not explicitly teach about the handshaking that takes place between server and archive as claimed.

Drottar teaches about waiting, at the server “first switch”, for an acknowledgement from the archive “second switch” for each individual data packet of the data packets, wherein the server receives the acknowledgement upon the archive receiving and storing the individual data packet, and wherein if the server does not receive the acknowledgement, then the server stores the individual data packet (Col 2, lines 35-60);

It would have been obvious to some one of ordinary skill at the time of the invention to use a handshaking protocol to confirm that the intended data transfer was successful accomplished and to be better able to manage flow control.

Data communication media are unreliable and the provider of a data needs to be reassured that the data that was sent had arrived at its destination successfully. The success of flow control is realized in the management of the buffers (i.e. the filling and emptying of the buffer) that are used while the message is in transit. Without the knowledge that a message was successfully delivered it would be impossible to effectively manage the buffers that are the key elements used in managing flow control. Without flow control, there will be congestion, which will lead to network failure.

In claim 2, Lo combined with Drottar teaches about a method of claim 1, wherein the archive stores the data packets with their attached unique sequence numbers, receives the query

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from the client, and transmits to the client the missing data packet (Lo Col 3, lines 25-35) (Lo Col 3, lines 50-60).

In claim 3, Lo combined with Drottar teaches about a method of claim 1, herein when the archive does not store the data packets and does not return the acknowledgement to the server “intermediate point” such that the server stores the data packets with their attached unique sequence numbers, the server receives the query from the client “next delivery point”, and the server transmits to the client the missing data packet (Drottar abstract).

In claim 4, Lo combined with Drottar, teaches about a method of claim 1, wherein the unique sequence numbers identify the data packets and denote an order in which the data packets are broadcast (Lo Col 3, lines 50-60).

In claim 5, Lo combined with Drottar, teaches about a method of claim 4, wherein the unique sequence numbers contain enough digits “ 2^{16} ” to ensure that no two data packets receive identical sequence numbers (Lo Col 3, lines 50-60).

In claim 7, Lo combined with Drottar, teaches about a teaches about a method of claim 1, wherein the step of monitoring for a missing sequence number at the client comprises the steps of:

- (i) receiving a first data packet and recording a first unique sequence number associated with the first data packet (Lo Col 13, lines 15-25);
- (ii) receiving a second data packet and recording a second unique sequence number associated with the second data packet (Lo Col 13, lines 15-25);

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comparing the first unique sequence number to the second unique sequence number (Lo Col 13, lines 15-25); and

(iv) if the second unique sequence number is not in sequence after the first unique sequence number, then determining that the client is missing a sequence number (Lo Col 13, lines 15-25). In order to detect the proper sequence all the above step has to be done.

In claim 8, Lo combined with Drottar, teaches about a method of claim 7, further comprising the step of:

(v) if the second unique sequence number is in sequence after the first unique sequence number, then determining that the client is not missing a sequence number (Lo Col 13, lines 15-25). In order to detect the proper sequence all the above step has to be done.

In claim 10, Lo combined with Drottar, teaches about a method of claim 9, wherein the step of sending a query comprises sending the query from the client to the archive (Drottar Col 2, lines 55-65), and

wherein, if the archive does not respond or if the archive does not have the missing data packet, then the step of sending a query further comprises sending the query to the server (Drottar Col 2, lines 55-65).

In claim 11, Lo combined with Drottar,, teaches method of claim 10, wherein, if the archive has the missing data packet, then the archive transmits the missing data packet to the client (Lo Col 2, lines 5-15).

In claim 12, Lo combined with Drottar, teaches method of claim 11, wherein the archive transmits the missing data packet to the client in a point-to-point communication (Drottar Col 5, lines 20-25).

In claim 14, Lo combined with Drottar,, teaches method of claim 10, wherein, if the server has the missing data packet, then the server transmits the missing data packet to the client (Lo Col 2, lines 5-15).

In claim 15, Lo combined with Drottar, teaches method of claim 14, wherein the server transmits the missing data packet to the client in a point-to-point communication (Drottar Col 5, lines 20-25).

In claim 17, Lo combined with Drottar, teaches about a system for data distribution and recovery comprising (Fig 1) (Fig 5):

- (a) a server “source” having broadcast messaging software (Lo Col 3, lines 25-35);
- (b) a plurality of clients in communication with the server through the broadcast messaging software (Lo Col 3, lines 25-35) (Lo Col 8, lines 55-67); and
- (c) an archive “server” in communication with the server “source” through the broadcast messaging software, and in communication with the plurality of clients, wherein the archive stores data broadcast by the server (Lo Col 3, lines 25-35) (Lo Col 8, lines 55-67),
wherein the server receives a data packet, attaches a unique sequence number to the data packet, and broadcasts the data packet to the plurality of clients and the archive using the broadcast messaging software receives an acknowledgement from the archive for broadcasted data packets and stores broadcasted data packets for which an acknowledgement is not received from the archive (Lo Col 3, lines 50-60) (Lo Col 8, lines 55-67) (covered in claim 1),
wherein each client of the plurality of clients receives the data packet broadcast by the server, uses the unique sequence number to determine whether a previous data packet is missing,

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and, if the previous data packet is missing, requests the previous data packet from the archive (Drottat Col 5, lines 5-20).

wherein the archive “second switch” comprises a client component “receive queue”, (Drottat Col 5, lines 33-38) (Drottat Col 2, lines 45-65) and

wherein the client component is adapted to interface with the server “first switch” , is adapted to receive and store the data packet broadcast by the server and the unique sequence number attached to the data packet, and is adapted to return the acknowledgement to the server indicating the unique sequence number of the received data packet (Drottat Col 2, lines 45-65).

In claim 18, Lo combined with Drottat, teaches about a system of claim 17, wherein the archive is also in communication with the server through point-to-point communication (Drottat Col 5, lines 20-25)

In claim 19, Lo teaches about a system of claim 17, wherein each client of the plurality of clients requests the previous data packet through a point-to-point communication with the archive (Drottat Col 5, lines 20-25)

In claim 20, Lo combined with Drottat, teaches about a system of claim 17, wherein each client of the plurality of clients requests the previous data packet through a broadcast communication with the archive (Lo Col 2, lines 5-15).

In claim 21, Lo combined with Drottat, teaches about a system of claim 17, wherein the unique sequence number identifies the data packet and denotes an order in which the data packet is broadcast in relation to other data packets (Lo Col 3, lines 50-60).

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In claim 22, Lo combined with Drottar, teaches about a system of claim 21, wherein the unique sequence number contains enough digits (2^{16}) to ensure that no two data packets receive identical sequence numbers (Lo Col 3, lines 50-60).

In claim 24, Lo combined with Drottar, teaches about a system of claim 17, wherein using the unique sequence number to determine whether a previous data packet is missing comprises (Lo Col 13, lines 15-25):

(i) comparing the unique sequence number to a last received unique sequence number, wherein in the last received unique sequence number corresponds to a data packet last received before the data packet (Lo Col 13, lines 15-25); and

(ii) if the unique sequence number is not in sequence after the last received unique sequence number, then determining that a previous data packet is missing (Lo Col 13, lines 15-25).

In claim 25, Lo combined with Drottar, teaches about a system of claim 17, wherein the server stores “first switch” the data packet because the archive “second switch” is off line and thereby fails to send the acknowledgement “error indication” (Drottar Col 2, lines 45-65).

In claim 26, Lo combined with Drottar, teaches about a system of claim 17, wherein the broadcast messaging software is TIB Rendezvous (Lo Col 3, lines 25-35). The TIB Rendezvous is a off the shelf software that can be purchased commercially. The function of the prior art is equivalent.

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In claim 27, Lo combined with Drottar, teaches about a system of claim 17, wherein the archive comprises an archiving process component (component that manage the ACK that comes from destination 4) (Drottar Col 6, lines 5-10)

wherein the archiving process component is adapted to listen for a query (NACK indicate a failure which require the data to be resend) from a requesting client of the plurality of clients, to read a referenced sequence number of the query, to retrieve a data packet corresponding to the referenced sequence number, and to return the data packet corresponding to the referenced sequence number to the requesting client (Drottar Col 6, lines 20-30).

In claim 28, Lo combined with Drottar, teaches about a system of claim 27, wherein the client component and the archiving process component are a single software program “flow control mechanisms” (Drottar Col 5, lines 5-20) (Drottar Col 10, lines 48-53).

In claim 29, Lo teaches about a system of claim 27, wherein the client component is identical to software provisioned on the plurality of clients, except that the client component is modified to provide an acknowledgement to the server (Fig 3), (Drottar Col 5, lines 20-25) (Drottar Col 5, line 55- Col 6, line 30). (The flow control is the same on source 3, switch 13 and destination 4. The point to point communication will require a difference in the point to point link between source 3 and switch 13).

In claim 30, Lo combined with Drottar, teaches about a system of claim 17, wherein the plurality of clients is a dynamic client set in which individual clients are dynamically added to or removed from the plurality of clients without requiring administrative changes at the server (Lo

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Col 2, lines 20-30), and (This feature comes as a result of the independence that exist between client and server).

wherein new clients are configured to pick up broadcasts from the server from a time that the new clients are added, and are configured not to request data packets transmitted prior to that time(Lo Col 2, lines 20-30) (This feature comes as a result of the independence that exist between client and server).

In claim 31, Lo combined with Drottar, teaches about a system of claim 17, wherein the client stores the data packet and the previous data packet onto a disk (Lo Col 3, lines 50-60).
(Hard disk has to be present for storage to be possible)

In claim 32, Lo combined with Drottar, teaches about a system of claim 31, wherein the data packet and the previous data packet include their unique sequence numbers, and wherein the unique sequence numbers are stored as part of a data packet file name (Lo Col 3, lines 50-60).

In claim 33, Lo combined with Drottar, teaches about a system of claim 31, wherein the data packet and the previous data packet include their unique sequence numbers, and wherein the unique sequence numbers are stored as part of contents of the data packet and the previous data packet (Lo Col 3, lines 50-60).

In claim 34, Lo combined with Drottar, teaches about a system of claim 17, wherein the client acts as an application program interface for a program that processes data packets, such that the data packets are delivered directly to the processing program (Lo Col 4, lines 5-10).

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In claim 35, Lo combined with Drottar, teaches about a system of claim 17, wherein the server and the archive are a single physical computer (Lo Fig 5). (The combining of two or more functions is considered equivalent to the system function of the prior art).

In claim 36, Lo teaches about a system of claim 17, wherein the server and the archive are separate physical computers (Lo Fig 1).

In claim 37, Lo combined with Drottar, teaches about a method for distributing data comprising (Lo Fig 1):

attaching a unique sequence number to each of a sequence of data packets (Lo Col 3, lines 50-60);

transmitting the data packets to a plurality of clients and to an archive (Lo Col 3, lines 25-35) (Lo Col 8, lines 55-67);

receiving the data packets at the archive “server” (Col 3, lines 25-35);

storing the data packets at the archive (Lo Col 3, lines 50-60);

determining whether a client of the plurality of clients has not received at least one of the data packets (Lo Col 3, lines 50-60); and

upon determining, that a data packet has not been received by the client, sending query from the client to the archive and wherein, if the archive does not respond or if the archive does not have the missing data packet, then sending a query from the client to the server (covered in claim 1) and

(f) re-transmitting the data packets that have not been received by the

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client to the client from the archive in response to the query if the archive has the missing data packet or from the server in response to the query if the archive does not have the missing data packet (covered in claim 1).

In claim 38, Lo combined with Drottar, teaches about a method of claim 37, wherein after the step of receiving the data packets at the archive “second switch”, the method further comprises sending an acknowledgement for the each of the sequence of data packets that is received (Drottar Col 2, lines 55-65).

In claim 39, Lo combined with Drottar, teaches about a method of claim 38, wherein the acknowledgement “ACK” references the unique sequence number “#10 to #13” 13for the each of the sequence of data packets that is received (Drottar Col 6, lines 20-30).

In claim 40, Lo combined with Drottar, teaches about a method of claim 37, wherein the step of determining whether a client of the plurality of clients has not received at least one of the data packets comprises identifying an absence of at least one unique sequence number at the client (Lo Col 3, lines 50-60).

In claim 41, Lo combined with Drottar, teaches about a method of claim 37, wherein transmitting the data packets to a plurality of clients and to an archive comprises broadcasting the data packets (Lo Col 3, lines 25-35) (Lo Col 8, lines 55-67).

In claim 42, Lo combined with Drottar, teaches about a method of claim 37, wherein re-transmitting the data packets that have not been received by the client to the client uses a point-to-point communication (Lo Col 3, lines 45-50).

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In claim 43, Lo combined with Drottar, teaches about a computer readable medium having instructions that when executed by a server computer, an archive computer, and a plurality of client computers results in acts comprising:

attaching a unique sequence number to each of a sequence of data packets (Lo Col 3, lines 50-60);

transmitting the data packets from the server computer to the plurality of client computers and to the archive computer (Lo Col 3, lines 25-35) (Lo Col 8, lines 55-67),

receiving one or more of the data packets at the archive computer (Lo Col 3, lines 50-60);

storing the received data packets at the archive computer (Lo Col 3, lines 50-60);

determining whether a client computer of the plurality of client computers has not received at least one of the data packets (Lo Col 3, lines 50-60);

upon determining that a data packet has not been received by the client computer, sending a query from the client computer to the archive computer, and wherein, if the archive computer does not respond or if the archive computer does not have the missing data packet, then sending a query from the client computer to the server computer (covered in claim 1), and

re-transmitting the data packets that have not been received by the client computer to the client computer from the archive computer in response to the query if the archive computer has the missing data packet or from the server computer in response to the query if the archive computer does not have the missing data packet (covered in claim 1).

In claim 44, Lo combined with Drottar, teaches about a computer readable medium of claim 43, wherein the acts further comprise, after the act of receiving the one or more data

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packets at the archive computer, sending an acknowledgement for the each of the sequence of data packets that is received (Drottar Col 2, lines 55-65).

In claim 45, Lo combined with Drottar, teaches about a computer readable medium of claim 44, wherein the acknowledgement references the unique sequence number for the each of the sequence of data packets that is received (Lo Col 3, lines 50-60).

In claim 46, Lo combined with Drottar, teaches about a computer readable medium of claim 43, wherein the act of determining whether a client computer of the plurality of client computers has not received at least one of the data packets comprises identifying an absence of at least one unique sequence number at the client computer (Drottar Col 2, lines 55-65).

In claim 47, Lo combined with Drottar, teaches about a computer readable medium of claim 43, wherein transmitting the data packets to a plurality of client computers and to an archive computer comprises broadcasting the data packets (Lo Col 3, lines 25-35) (Lo Col 8, lines 55-67).

In claim 48, Lo combined with Drottar, teaches about a computer readable medium of claim 43, wherein re-transmitting the data packets that have not been received by the client computer to the client computer uses a point-to-point communication (Drottar Col 5, lines 20-30).

3. Claims 6 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,031,818 by Lo et al and US Patent No. 6,181,704 by Drott et al in view of US Patent No. 6,523,114 by Barton.

In claim 6 Lo combined with Drott, teaches all the limitation but does not explicitly teach about a method of claim 4, wherein the unique sequence numbers are 32-bit sequence numbers.

The use of a 32-bit sequence number is well known in the art as disclosed by Barton (Col 10, lines 5-15). It would have been obvious at the time of the invention for some one of ordinary skill to use a 32-bit sequence number in order to prevent wrap around errors.

The operation of sequence numbering is cyclic. In large data frame transmission, a small number of sequence number bits will result in a small total count that will be easily exhausted by the large number of packages within the frame. This will result in wrap around error, which causes multiple packets within the frame to have the same number and thus makes the packets indistinguishable from each other.

In claim 23, the system of claim 21, wherein the unique sequence number is a 32-bit sequence number (Covered in 6).

Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,031,818 by Lo et al and US Patent No. 6,181,704 by Drott et al in view of US Patent No. 6,167,457 by Eidson et al.

In claim 13, Lo combined with Drottar,, teaches all the limitation but does not explicitly teach about a method of claim 11, wherein the archive transmits the missing data packet to the client in a broadcast communication using subject-based addressing.

The use of subject-based addressing is well known in the art as disclosed by Eidson (Col 1, lines 25-40). It would have been obvious to some one of ordinary skill at the time of the invention to use a subject-based addressing scheme in order to reduce the complexity involved in broadcast addressing.

By tagging addresses with well-known names, it removes the complexity of dealing with IP addresses that shows no human intelligent link to the object that they represent. By using subject-based addressing, in subscription broadcasting, the task of classifying subscription is greatly simplified as the subject-based addressing represents real physical entity that is easily understood by a human operator.

In claim 16, Lo and Drottar combines with Eidson, teaches about a method of claim 14, wherein the server transmits the missing data packet to the client in a broadcast communication using subject-based addressing (Covered in 13).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 6,335,933 by Mallory teaches about a limited automatic repeat request protocol for frame-based communication channels.

US Patent No. 5,515,508 A by Pettus et al., teaches about a client server system and method of operation including a dynamically configurable protocol stack.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael S. A. Delgado whose telephone number is (571) 272-3926. The examiner can normally be reached on 7.30 AM - 5.30PM.

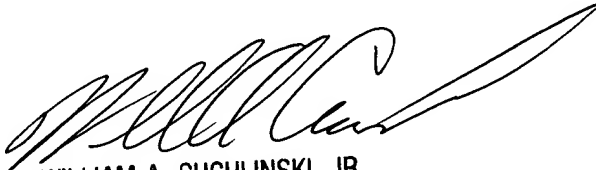
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM A CUCHLINSKI JR can be reached on (571) 272-3925

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MD



WILLIAM A. CUCHLINSKI, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600